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ANNUAL REPORT  
OF THE  
EASTERN ROCKIES FOREST  
CONSERVATION BOARD  
FOR THE  
FISCAL YEAR  
1969-1970

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A N N U A L   R E P O R T  
of the  
EASTERN ROCKIES FOREST CONSERVATION BOARD

FISCAL YEAR ENDING MARCH 31, 1970

CALGARY, Alberta  
1970

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EASTERN ROCKIES FOREST CONSERVATION BOARD  
908, John J. Bowlen Building  
620 - 7th Avenue S.W.  
Calgary 2, Alberta

June 5, 1970

Sir:

I have the honour to submit herewith the Annual Report of the Eastern Rockies Forest Conservation Board for the fiscal year 1969-70, pursuant to the provisions of The Eastern Rocky Mountain Forest Conservation Act of 1947.

Respectfully submitted,  
J. R. H. Hall  
Chairman

The Honourable Jack Davis  
Minister  
Department of Fisheries and Forestry  
Ottawa

2581240



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Respectfully submitted,  
J. R. H. Hall  
Chairman

The Honourable Dr. J. Donovan Ross  
Minister  
Department of Lands and Forests  
Edmonton



EASTERN ROCKIES FOREST CONSERVATION BOARD  
1969-70

MEMBERS

J. R. H. Hall	Chairman, Edmonton, Alberta
Dr. J. D. B. Harrison	Member, Ottawa, Ontario
A. T. Baker	Member, Calgary, Alberta

PRINCIPAL OFFICERS

W. R. Hanson	Chief Forester, Calgary, Alberta
J. P. Hourigan	Secretary, Calgary, Alberta



CONTENTS

	Page
Letters of Transmittal	2 & 3
Members of the Board	4
Introduction	6 & 7
Administration	8 - 10
Management of the Conservation Area	
Eastern Rockies Forest Conservation Board	11 - 13
Alberta Forest Service	14 - 20
Research in the Conservation Area	
Eastern Rockies Forest Conservation Board	21 - 23
Canadian Forestry Service	24 - 27
Appendices:	
"A" - Summary of Recreation Area Sites	
"B" - Annual Grazing Report	
"C" - Statistics of Forest Production	
"D" - Auditor's Report with Statements "A" to "C"	



## INTRODUCTION

The Eastern Rockies Forest Conservation Board was established under authority of "The Eastern Rocky Mountain Forest Conservation Act" which was assented to July 17, 1947, and ratified by an Alberta Statute assented to March 31, 1948.

Set out in the Schedule to the Act is an Agreement that was subject to approval by the respective governments and which was to take effect on a date to be agreed upon by the Minister of Mines and Resources of Canada and the Minister of Lands and Mines of Alberta. The effective date of this Agreement was fixed by the respective Ministers as April 1, 1948.

The purposes or objects of the Eastern Rockies Forest Conservation Board are:

- (a) to construct, operate and maintain and to supervise the construction, operation and maintenance of projects and facilities required for the conservation of the forests and the protection of the watersheds in an Area<sup>1</sup> forming part of the Rocky Mountains Forest Reserve as defined in the Agreement;
- (b) to protect the forests in the Area from fire, insects, disease and other damage; and
- (c) to conserve, develop, maintain and manage the forests in the Area with a view to obtaining the greatest possible flow of water in the Saskatchewan River and its tributaries.

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<sup>1</sup> The Conservation Area contains approximately 9,000 square miles on the East Slopes of the Rocky Mountains bounded by the National Parks of Waterton Lakes, Banff and Jasper, and by the Brazeau-Athabasca divide.



The Board's preliminary studies indicated that a policy under the Act of "obtaining the greatest possible flow of water in the Saskatchewan River and its tributaries" would have been dangerous and likely to cause floods and erosion at certain seasons of the year, followed by unacceptable small flow at others. Therefore, the Board's policy has been to manage the Conservation Area for optimum flow.

By inference of the Act, water is the most important product of the Conservation Area and watershed management is, therefore, of primary concern. The Board has adhered to the principle that watershed protection and improvement may be attained along with the utilization of the other resources, hence a policy of managing the Conservation Area on a multiple use basis has been accepted.

In the Agreement drawn up between the two governments the first seven years of the Board's operation were designated the "capital period" and were characterized by a multi-million dollar development program. Following this period the Board handed over the product of its development program to the Alberta Forest Service to administer and operate.

The work of the Board during the past year involved the writing of Conservation Unit Guides, watershed research, inspections to determine conditions and quality of management and studies to evaluate watershed damage and the related causes.



## ADMINISTRATION

The Eastern Rockies Forest Conservation Board held five meetings between April 1, 1969, and March 31, 1970. All of these meetings were held at the Board office in Calgary.

In attendance at the meeting of the Board on August 6, 1969, were the Honourable Dr. J. Donovan Ross, Minister of Lands and Forests, and his Deputy Minister, Dr. V. A. Wood. The meeting was also attended by the Honourable Mr. A. W. Ludwig, Minister of Public Works. The meeting was followed by a field trip to the headwaters of the Elbow and Sheep rivers and Jumpingpound Creek where an opportunity was afforded to make an inspection by air and ground of coal explorations in progress. On the following day, August 7, the party proceeded to the Kananaskis Valley and inspected the progress of revegetation at the Barrier Lake borrow area and also observed revegetation work which was being commenced at the old Ribbon Creek strip mine. The visit to Ribbon Creek also included an inspection of gauging installations in the Marmot Creek Experimental Watershed. Before returning to Calgary, an inspection was made of the Snowridge Ski Development.

A very noteworthy event during the year was the transfer of the Board's watershed management forester, together with an established position for a Forester III to the Department of Lands and Forests, Edmonton. The transferred position and incumbent then became the nucleus of the Watershed Management Section of the Forest Land Use Branch in the Alberta Forest Service. In addition, a clerical position was transferred from the Board to the newly created Watershed Management Section.

The establishment of a watershed management section in the Department culminated years of activity and encouragement by the Board. Since the early days of the Board, watershed protection has been encouraged and emphasized in all forest uses. Management principles and methods were taught at Alberta Forest Service training sessions and at the Forestry Training School. Studies were undertaken to determine watershed damage and to develop procedures of protection and restoration of good watershed conditions. All of the Board's activities in watershed management were closely tied in with the Alberta Forest Service and they were encouraged to implement the Board's studies and findings. The



forester transferred to the Department of Lands and Forests had been hired by the Board in 1961 and he was given the responsibility at that time to foster good watershed management and the work which he supervised constituted an important part of the Board's work. In the next year, 1962, following a report by Marvin Hoover who was brought in as a special consultant on watershed management, the Board made a formal recommendation to the Department of Lands and Forests that they establish a watershed management agency. The Department agreed but pointed out that some time would be required before it would be appropriate. In the interim the Department increased its activities in watershed management and in 1968 indicated that it was ready to establish the section.

During the year, members of the Board staff attended or participated in gatherings of various kinds. A representative attended the Western Snow Conference at Salt Lake City in April, 1969. A delegation attended the American Water Resources Association's symposium on "The Water Balance of North America", held at Banff in June, and two staff members attended the Forest Microclimate Symposium at Kananaskis Forest Experiment Station in September. The Board staff co-operated with the Canadian Forestry Service in a watershed management seminar with the personnel of the Alberta Forest Service. The Chief Forester served at the A.W.R.A.'s Banff symposium as Local Arrangements Chairman and, also, was the General Chairman of the 22nd Annual Meeting of the American Society of Range Management, which was held in Calgary in the early part of 1969. This, incidentally, marked the first time that either of the latter two organizations had held functions of this stature outside the boundaries of the United States.

The public's awakening interest in conservation was particularly noticeable during the year. This is a well-received change--three or four years ago the subject drew little interest. The Board received an increasingly large number of requests from the public for "conservation material". These requests were met by distributing pamphlets and brochures which originated from a number of sources; the need for a single, suitable publication on conservation became apparent. Both the Federal and Provincial governments offered the help of their respective information services if



the Board were to undertake preparation of such a publication. As a result, the Board has prepared a conservation pamphlet which is ready for printing at the time this report is being written.

During the year, foresters of the Board staff fulfilled requests to address youth groups and grade school students on subjects of natural resources, soil and water conservation and good land use. For one of the foresters, Mr. R. C. Davis, his interest in young people whom he met and encouraged in the course of these duties proved especially rewarding when one of them won first prize for a display concerning pollution in the Bow River in the biology section of the Calgary School Science Fair.

The Board noted with satisfaction the enactment of "The Environment Conservation Act" which was passed at the last session of the Alberta legislature. This new legislation will institute a means toward prevention and correction of many of the abuses heretofore inflicted on watershed values.

In April, 1969, the Board's offices were moved to the John J. Bowlen Building. This is a new office building built by the Provincial Government and is located in the heart of Calgary's growing business district.



## MANAGEMENT OF THE CONSERVATION AREA

In the Agreement connected with "The Eastern Rocky Mountain Forest Conservation Act" the Alberta Department of Lands and Forests retains the responsibility for administration of the Conservation Area, although the Board did carry out administration for a period of four years following 1955. The management of the use of the land resources is the responsibility of both the Board and the Department. By mutual agreement the Board outlines management guides and sets general programs while the Department plans and executes the management.

### CONSERVATION UNIT GUIDES

In keeping with the above arrangement, the Board published the Upper North Saskatchewan Unit Guide, R6, and began work on two others. A recreational land use classification of the Bighorn area became part of the Guide.

### PETROLEUM AND NATURAL GAS STUDY

A study to evaluate the influence of petroleum and natural gas exploitation on the quality of surface resources such as water, recreation, fish and wildlife was undertaken. Mileages and acreages of seismic lines, roads, wellsites and pipelines are compiled by watersheds. This study is to be continued in 1970-71.

### SUPERVISION AND INSPECTION

By liaison with the Alberta Forest Service and by inspections the Board determined the fulfillment of policy and programs which it had determined for the Area. All applications for recreational or other special land use came to the Board for approval.

Recreational Development - During the year four forest camp and recreational area plans were approved. Three applications to explore feasibility of ski development areas were approved.

Coal Exploration - A keen interest in the abundant coal resource of the Conservation Area has been renewed and applications now cover the areas along the major coal seams of the Area. During the year five applica-



tions for exploration permits were considered by the Board. Although the applications came to the Board, it does not hold the power to prohibit the extraction of coal or other minerals because of certain legislation, but the Board was able to influence the regulations placed upon the companies carrying out the exploration and to get some conservation methods applied.

The Board carefully inspected all exploration programs. In general, careful methods were used and little damage to watershed values occurred. Very little damage that could have been avoided was found. Some destruction to aesthetic values occurred in very limited areas.

Although no new mines were established during the year it is likely that some of the coal seams explored will be exploited in the near future.

Gas and Oil - Although applications for geophysical exploration do not come to the Board, applications for gas processing plants, roads and most applications for surface leases for well sites do. Although oil companies may obtain right-of-entry to petroleum and gas leases without going to the Department of Lands and Forests, most companies do apply for surface leases in the regular way and these come to the Board for approval.

The activity in natural gas exploitation increased greatly during the year in all the major fields along the foothills. Some exploratory drilling was carried out in the high mountains, one practically on the continental divide. This increased activity is indicated by the statistics of applications approved in the Conservation Area during the year:

Wellsites	49
Pipelines	11
Gas Processing	
Plants	1

Other Development - Related development also stepped up as indicated on the following page:



Powerlines	8
Copper Exploratory	
Permit	1
Quarries opened	4
Sand and Gravel	2
Gypsum mine site	1



## MANAGEMENT BY THE ALBERTA FOREST SERVICE

The Alberta Forest Service, as a Division of the Department of Lands and Forests, administers the Conservation Area along with other forest lands of the Department. Below is a report of their activities in administration and management.

### WATERSHED RESTORATION

Restoration work was conducted in the Crowsnest, Bow River and Clearwater-Rocky forests. In the Crowsnest Forest complete restoration consisting of debris disposal, landscaping and seeding was carried out on eleven millsites. Over five miles of new roadway were hydroseeded, together with 25 miles of existing roads and trails which, in addition, were cross-ditched. Several restoration trials were conducted and these consisted mainly of landscaping, seeding and fertilizing of different sites at various elevations.

In the Bow River Forest, the restoration work carried out was similar to that in the Crowsnest Forest. In addition, erosion damage was repaired on 52 miles of seismic line in the Ghost District and this work included cross-trenching, berm removal, gully filling and seeding.

In the Clearwater-Rocky Forest, erosion control installations were completed on 106 miles of seismic line and seeding was completed on 180 miles of seismic line. A new approach to reparation of seismic lines was introduced by the Alberta Forest Service during the year. A pilot area has been set up where the A.F.S. does all the reparation on seismic lines. This pilot area extends throughout 23 townships in the eastern sections of the Conservation Units R2 (Nordegg-Baptiste), R5 (Lower Saskatchewan), R7 (Prairie Creek), R8 (Ram) and R9 (Clearwater). A levy of \$30.00 per mile is charged to the operator for the use of any seismic line within the pilot area.

### GEOPHYSICAL EXPLORATION - OIL AND GAS DEVELOPMENT

Intensive geophysical activity continued in the Strachan-Prairie Creek area in 1969-70. During the year approximately 2,100 miles of seismic line were constructed in the Conservation Area, and just under 300 seismic programs were completed during the year.



*Actual use* Oil and gas development continued at the same fast pace as reported in the previous year; the number of wells drilled and the number producing in each forest are as follows:

	Producing Wells	Wells Drilled in 1969-70	Abandon- ments
Crowsnest Forest	28	4	1
Bow River Forest	42	27	11
Clearwater-Rocky Forest	21	24	16

**RECREATIONAL PLANNING** Use of the Conservation Area by the public for recreational travel and leisure continued to be significant during the past year. All recreation area facilities were utilized to capacity during the summer months, particularly on the weekends. Field reports indicate that mid-week use of facilities is increasing which suggests that the public is using the Area for holiday vacation periods.

During 1969-70 four recreation area site plans were approved by the Board. Three of the plans were for existing areas that required major expansions and the fourth was a new area to be developed in 1970. To date 26 recreation area development plans have been approved by the Board. These areas are designed to accommodate a total of 392 picnic units, 323 tent units and 209 trailer units.

The Recreation Capability project under the Canada Land Inventory program proceeded on schedule within the Rocky Mountains Forest Reserve. It is anticipated that all work in the Forest Reserve relating to this project will be finalized in 1970.

An updated summary of Board-approved recreation area site plans indicating facilities and services is shown as Appendix "A" to this report.

**GRAZING SUMMARY** The weather conditions during the spring and early summer of 1969 were excellent for forage production. Dry conditions later in the summer resulted in the greater utilization of timbered area thus resulting in a range condition generally better than



previous years. Actual use amounted to 85,466 animal unit months compared to 85,869 A.U.M.s in 1968.

Grazing revenue for the year amounted to \$76,069 from 281 permits on 95 allotments. Grazing fees were \$1.00 per A.U.M. in the Porcupine District and 80¢ per A.U.M. elsewhere in the Conservation Area. The reduction in the number of grazing permits reflects the current trend in agriculture towards larger more economic ranching operations.

**GRAZING RANGE CONDITION**

The Crowsnest Forest reported an overall "good" range condition with minor areas of poor condition range being restricted to natural congregation sites. Forage production was reported as excellent, resulting in a general improvement of primary range.

The Bow River Forest reported range condition as being in generally fair to good condition with an improvement in forage production over the 1968 grazing season. Range classified as "poor" was very limited in area and attributed to poor livestock distribution.

The Clearwater-Rocky Forest range condition was reported in good to excellent condition. Because the Clearwater-Rocky Forest stocks all range allotments at 50% of their calculated stocking rate, problem areas are very limited and restricted to salt grounds and watering areas.

**GRAZING DIVISION OF RANGE** No changes in allotment boundaries took place in the Crowsnest Forest during the 1969-70 grazing season.

In the Bow River Forest, upper portions of Fisher Creek and all of the Sheep Creek drainage have been deleted from the McCue Creek Range Allotment due to unsuitability for grazing by domestic livestock.

In the Clearwater-Rocky Forest, highway construction in the Shunda Ranger District will make livestock grazing in the Saunders Range Allotment highly undesirable. Grazing will be discontinued in that area at the end of the 1970-71 grazing season.



**GRAZING RANGE IMPROVEMENTS** Improvements completed in the Crowsnest Forest during the year included two troughs, one dugout, one cattle guard, trail cutting and fencing as required. Experimental sprayings to eradicate Shrubby Cinquefoil were completed on 25 acres in the Willow Creek District.

The use of minimum security personnel was obtained to hand-spray 200 acres of larkspur infested range in the Upper James Allotment of the Bow River Forest. Mechanical clearing of swamp birch has been completed in the Grease Creek area on an experimental basis. Results should be forthcoming during the summer of 1970. Approximately 12 miles of trail and over two miles of fencing were constructed in the South and North Sheep Allotments, respectively.

In the Clearwater-Rocky Forest no range improvements were completed in the past grazing season.

**GRAZING-GAME PROTECTION** In the Crowsnest Forest the "Co-operative Forage Resources Study" which was undertaken in 1968 is being continued. Former allotments closed to domestic livestock grazing include the Glacier Creek and York Sentry Allotments. Grazing will be terminated at the end of 1971 in the Gladstone Allotment in favour of watershed and habitat protection.

Areas in the Bow River which have been wholly or partially closed to grazing by domestic livestock include:

- (a) Kananaskis District;
- (b) Ya-Ha-Tinda area with the exception of Federal Crown land;
- (c) Upper areas of the Waiparous, Ghost, Fallentimber and Burnt Timber watersheds;
- (d) Ghost Wilderness area;
- (e) Sheep Creek and Wigwam Creek in the Red Deer District; and
- (f) Upper Sheep Distribution Unit in the South Sheep Allotment.

In the Clearwater-Rocky Forest no serious competition between wild and domestic ungulates was



reported in the past year. All allotments in this forest are stocked at only fifty per cent of their calculated rate in order to protect wildlife habitat.

**GRAZING STATISTICS**      Details of cattle grazed, permits issued, revenue and livestock losses are given in Appendix "B" to this report.

**FOREST PROTECTION**      A total of 23 forest fires, divided between the three forests, were recorded during the year and the area burned amounted to only a little over 35 acres. Consistent with the preceding year, the majority of these fires were caused by lightning and recreation.

**CONSTRUCTION AND MAINTENANCE**      In the Crowsnest Forest a half-mile of new grade was constructed to bypass the existing grade to the trailer camp in Streeter Basin. A new multiplate culvert and nearly a half-mile of new grade were constructed at Benjamin Creek on the Forestry Trunk Road in the Bow River Forest. The Jack Fish Coulee Road in the Clearwater Forest was extended to Aurora Lookout, a distance of five miles.

A new 112-foot steel bridge was erected at James River Crossing No. 3 to replace the old timber structure on the Forestry Trunk Road at Mile 233.5.

The Falls Airstrip in the Clearwater Forest was rebuilt and runway extended a distance of 500 feet at the west end.

A two-stall addition to the garage at Elbow Ranger Station was constructed. The water system at Ghost Ranger Station was improved. The landscaping was completed and curb and gutter installed at Canmore Ranger Station. A 100-foot steel tower was purchased to replace the wooden structure at Porcupine Hills.



## FOREST OPERATIONS

Most timber quota plans were operational and performing satisfactorily. Refinement was progressing in each management unit as the need arose dependent mainly upon increased utilization of saw logs and round timber. A number of small timber quotas were purchased by larger quota holders; consequently, this has allowed the consolidation of certain operations with resultant economies. All detailed timber cruising is up-to-date to provide timber licensed areas for the quota holders.

The utilization of timber continues to increase with the gradual conversion to scragg mill installations and the greater production of 2 x 4 lumber. A significant volume of timber is being manufactured into fence posts which are recovered from some immature lodgepole pine stands on an alternate clear-cut system using a small block or strip-cut layout plan.

All lumber and round timber quota production is now controlled on a cubic foot basis in view of the high degree of utilization and multiplicity of products.

Interest in pulp development continued with several large firms conducting various forest inventory and feasibility studies with the possible goal of establishing a pulp mill complex in the vicinity of the town of Rocky Mountain House. This pulp development area is rated as a high multiple use area and many important values in addition to timber, such as watershed, recreation and so forth, require study.

Timber salvage operations are continuing in certain overmature spruce stands in Crowsnest Forest where a very severe outbreak of the spruce bark beetle occurred in 1968. High tree mortality has occurred in the heavily infested areas.

Statistics of forest production and silvicultural projects appear as Appendix "C" to this report.



## COAL EXPLORATION

Extensive exploration for coal and potential future mining operations have caused great concern to the Department in regard to the apparent conflicts with renewable resource use and protection. During the year, The Public Lands Act, 1966, was amended and the Public Lands Surface Reclamation Regulations were established to provide greater powers to control reclamation on unsurveyed, public lands and forest reserves. The Environment Conservation Act, which comes into effect July 1, 1970, provides for a three-man Environment Conservation Authority to enquire into matters of resource conservation. Nine coal exploration programs were approved and carried out in the Conservation Area. They appear at intervals along the foothills and east slope ranges from the southern to northern extremity of the Area. One copper exploration program was approved in the Castle River District.

Board contributions were made to these.

Following is a summary of the research activities for the fiscal year 1969-70:

(a) The Castle Project. This project was originated by the Board with the co-operation of the Alberta Forest Service and Crestbrook Forest Industries of Crestbrook, B.C. The purpose of the project is to study steep-cutting methods with the objective of determining their feasibility and effectiveness for accumulating snow and delaying snow melt.

(b) The Swan Mountain Project. The broad objective of this project is to accumulate snow in a high elevation area for the purpose of delaying meltwater runoff. Experimentation with and evaluation of snow accumulating contrivances have been an integral part of this project.

(c) The Swan River Project. The Board's participation in this program is at the invitation of the Alberta Forest Service. The Board's contribution to the project is to evaluate the erosion and sedimentation problems of the Swan River basin; to make an assessment of precipitation, run-off and erosion relationships; and to produce an Index of the amount of soil loss from denuded areas and the amount of suspended sediment



## FOREST RESEARCH IN THE CONSERVATION AREA

### I. Research Directed by the Board

Research, particularly into watershed management, continued as an important part of the Board's activities. The Forester in charge of Research and the staff continued with several studies started earlier and initiated one in addition. The Board continued as a co-operating agency in the Alberta Watershed Research Program with the Chief Forester acting on the Steering Committee and the Forester in charge of Management acting as co-chairman of the Research Co-ordinating Committee.

Under the Alberta Research Program, the three basin studies are of special concern to the Board and contributions were made to these.

Following is a summary of the research activities for the fiscal year 1969-70:

- (a) The West Castle Project. This project was originated by the Board with the co-operation of the Alberta Forest Service and Crestbrook Forest Industries of Cranbrook, B.C. The Purpose of the project is to study strip-cutting methods with the objective of determining their feasibility and effectiveness for accumulating snow and delaying snow melt.
- (b) The Plateau Mountain Project. The broad objective of this project is to accumulate snow in a high elevation area for the purpose of delaying meltwater runoff. Experimentation with and evaluation of snow accumulating contrivances have been an integral part of this project.
- (c) The Swan Hills Project. The Board's participation in this program is at the invitation of the Alberta Forest Service. The Board's contribution to the project is: to evaluate the erosion and sedimentation problems of the Swan River basin; to make an assessment of precipitation, run-off and erosion relationships; and to produce an index of the amount of soil loss from denuded areas and the amount of suspended sediment



carried by the Swan River.

(d) The Snow Pillow Installation at Marmot Basin. In September, 1969, the Board completed the installation of the first snow pillow in Alberta. The 10-foot diameter butyl rubber pillow is a pressure sensing device that measures the water equivalent of snow.

(e) The Forage Inventory in Streeter Basin. As part of the Aspen-Grassland study in the Alberta Watershed Research Program, the Board conducted the annual forage inventory in the Streeter Research Basin by use of an electronic capacitance forage meter. The purpose of this continuing study is to obtain an accurate measure of forage production under present conditions so as to measure the results of aspen removal upon range productivity. It will also serve as a basis for a grazing plan in the basin.

(f) The Timber Harvesting Plan in Marmot Basin. The hydrology of Marmot Creek was sufficiently calibrated that a watershed treatment could be applied. A plan of harvesting timber from one of the sub-basins was drawn up and the necessary logging roads laid out. The road required is about 2.2 miles and will be constructed ahead of logging.

The watershed research on the East slopes involves several agencies that are co-operators in the Alberta Watershed Research Program. The Board acknowledges their assistance and expresses gratitude to them, particularly the Inland Waters Branch of the Department of Energy, Mines and Resources, the Meteorological Branch of the Department of Transport, the Canadian Wildlife Service of the Department of Indian Affairs and Northern Development, the Research Branch of the Department of Agriculture, the Alberta Department of Lands and Forests, the Alberta Water Resources Division of the Department of Agriculture and the Research Council of Alberta.



Besides supplying the co-ordinator of the co-operative research and assisting in the watershed research program, the Canadian Forestry Service has carried out other useful forest research.



## II. Research by the Canadian Forestry Service

The Canadian Forestry Service has continued research on forest resource and protection problems in the Conservation Area along the lines indicated in previous annual reports. The work has received the generous support of the Alberta Forest Service through financial contributions, the assistance of staff members and the provision of aircraft.

### SILVICULTURE AND FOREST ECOLOGY

No additional research was conducted on previously established studies of harvest cutting methods, seedbed treatment, planting or thinning. Studies not completed are being held on a maintenance basis pending re-organization of program.

Initiation of controlled burning experiments in lodgepole pine slash at Kananaskis Forest Experiment Station provided an opportunity to investigate several aspects of stand establishment on clearcut and burned areas on the East Slopes. Specific objectives of this new work include a comparison of spot and broadcast seeding, container and conventional planting, and fire effects on seed supply from seed trees and slash.

No new ecological investigations were undertaken in the Conservation Area in 1969-70. Further reporting was completed for previous work on spruce seed germination and on total growth of mature white spruce. Three additional aspen clones were sampled in the Kananaskis area to assess clone-to-clone variation in the proportions between stem, branch, and foliage weights. Complementary studies by the University of Calgary Environmental Sciences Centre in 1969 provided new information on biomass of under-story vegetation under varying density of aspen overstory. Limited field reconnaissance of some current and abandoned surface-mines areas in the foothills provided background for a review of disturbed land reclamation needs in Western Alberta.



LAND CLASSIFICATION  
AND SOILS

The Canadian Forestry Service was not actively engaged in any program in land classification and

soils in the Conservation Area in 1969, other than liaison work with the Alberta Forest Service regarding their Canada Land Inventory program.

FOREST INSECT AND  
DISEASE CONDITIONS

As in previous years, an assessment of the incidence and damage caused by forest pests in the

Conservation Area was conducted as part of the regional survey.

The spruce beetle outbreak, first reported in 1968, persisted during 1969 and remained as the most damaging pest in the Area. Characteristic of spruce beetle outbreaks is for beetle larvae to achieve most success on mature and overmature spruce. The younger spruce are likely to repel the initial attacks of the beetles through a copious flow of resin. These trees, however, are often heavily attacked during the following years and are eventually killed if the outbreak continues. During 1969, the Conservation Area was surveyed by helicopter during the latter part of August to pin-point those stands most heavily attacked. Ground surveys were conducted during September and an assessment of damage ascertained at 14 widely distributed points throughout the Crowsnest Forest. The results indicate a total volume of 21 per cent successfully attacked (dead or dying) and an additional 10 per cent attacked unsuccessfully. The total of the 1969 successful attack amounted to about eight per cent of which seven per cent was on those trees which were attacked previously. The outlook for 1970 is for about the same level as in 1969 with the heaviest infestation on the 10 per cent unsuccessfully attacked. A close watch will be maintained during 1970 in those areas where high proportion of susceptible trees still exists.

Severe frost during early June, 1969, resulted in mortality to the new shoots of spruce, alpine fir and Douglas fir. Damage was prevalent along the entire foothills area but was most noticeable on regeneration in the West Castle River Valley and the Porcupine



Hills. Winter climatic damage, commonly known as "red belt", occurred on lodgepole pine along the east side of Kananaskis Valley between Rocky and King creeks. Similar damage occurred to alpine fir and lodgepole pine along the headwaters of Allstones and Tershishner creeks in the Clearwater-Rocky Forest.

Aspen continued to be defoliated by several insect species. The forest tent caterpillar caused moderate to severe defoliation in the area of Rocky Mountain House and east of James River Bridge. The large aspen tortrix persisted in a relatively small area on the north end of the Porcupine Hills. Further north, this species was intermixed with the Bruce spanworm and together the two caused moderate to severe defoliation of aspen in the Water Valley, Bergen, Highland Ridge, Sundre, Bearberry, Burns-stock Lake and Crammond areas.

#### FOREST HYDROLOGY

The Canadian Forestry Service continued as a member of the inter-agency Alberta Watershed Research Program. Research staff included five professionals and five support positions.

The surveying and planning of a road plan for Cabin Creek cutting was made in Marmot Research Basin. A snow course measurement grid designed to evaluate snow areal distribution before and after cutting was read for the second consecutive year. No new research was started on Marmot Basin pending the completion of the treatment plan.

In Deer Creek basin routine snow course and vegetation surveys were continued. A new research study designed to test the influence of forest opening size on snow accumulation and ablation was started in uniform lodgepole pine in the James River area northwest of Sundre. This study is to provide partial information for the design of treatments for both Deer Creek and Marmot Creek basins.

Aerial photographs taken during the Spring of 1969 of Streeter Basin were used to define snow accumulation zones and those slow to melt in the Spring. Several openings are being intensively investigated. Five



springs are being gauged for their possible correlation with treatment on the snow accumulation areas. Infiltration or overland flow as a result of Spring snow melt has been the subject of intensive work this past Winter and Spring. Measurements of runoff and soil moisture taken during March and April 1970 should supply the final data to complete these studies.

Transpiration from individual trees is the subject of a series of continuing studies at the Kananaskis Forest Experiment Station. Heat pulse velocity as well as xylem moisture content and area are being evaluated in this effort. Also, soil water tension was evaluated in the area about an isolated tree in an attempt to compute water movement toward the tree in response to transpiration draft.

DEVELOPMENT AND  
FORESTRY SERVICES

Assessment of Alberta Forest Service container planting continued in the Clearwater-Rocky Forest. Exotic plantations were established and maintained in the Bow and Clearwater-Rocky Forests.

Assessment of helicopter seeding in the Rocky Mountain House area was initiated. Germination and survival were checked during the field season.

FOREST FIRE RESEARCH

Fire research operations in the Conservation Area were limited during the year. The first phase of a two-year prescribed burning project on the Kananaskis Forest Experiment Station was completed; 12 one and a half-acre blocks in lodgepole pine slash were burned during the summer. In addition, the forest floor fuels in lodgepole pine stands throughout the Conservation Area were sampled. The data collected from these studies will provide information required to improve the fire danger rating tables.



\*ROCKY MOUNTAINS FOREST RESERVE

RECREATION AREA DEVELOPMENT PROGRAM

Facilities and Services

Board	Picnic Section	Tent Section	Trailer Section	Boat Launching	Developed Water Well	Wood Supply	Caretaker Services	Weekly Cleanup Inspection	Shelter	Planned Trailer Dumping Disposal Station	ARDA Supported	Parking Areas
Approved												
Recreation Area												
Site Plans												
Ram Falls	50	30	20	-	x	x	x	-	x	x	x	x
Fish Lake	20	11	19	-	x	x	x	-	x	x	x	x
Upper Shunda Creek	20	15	5	-	x	x	x	-	-	-	x	x
Eau Claire	10	10	20	-	x	x	x	-	x	x	-	x
Cat Creek	10	10	--	-	x	x	x	-	x	-	-	x
Cataract Creek	10	10	--	-	x	x	x	-	x	-	-	x
Burnt Timber	10	10	8	-	x	x	x	-	x	-	x	x
Gooseberry Flat	30	10	10	-	x	x	x	-	x	-	-	x
Kananaskis Lakes	--	18	--	-	x	x	x	-	x	-	-	-
Beaver Flat	10	10	--	-	x	x	x	-	x	-	-	x
Spray Lakes	--	21	--	-	x	x	x	-	x	-	-	-
Red Deer River	12	15	26	-	x	x	x	-	x	x	-	x
Livingstone Falls	40	12	4	-	x	x	x	-	x	x	-	x
Racehorse	40	10	6	-	x	x	x	-	x	x	-	x
Lynx Creek	20	10	6	-	x	x	x	-	x	-	x	x
Waiparous Creek	10	20	20	-	x	x	x	-	x	x	-	x
James Wilson	10	5	10	-	x	x	x	-	x	-	x	x
North Ram River	10	10	--	-	x	x	x	-	x	-	x	x
Chinook	--	19	12	-	x	x	x	-	x	-	-	x
Deer Creek	10	--	--	-	-	x	x	-	x	x	-	x
Dutch Creek	20	16	8	-	x	x	x	-	x	x	-	x
Seven Mile	10	10	8	-	x	x	x	-	x	x	-	x
Prairie Creek	10	10	10	-	x	x	x	-	x	x	-	x
Allison	10	9	8	-	x	x	x	-	x	x	-	x
Indian Grave	10	9	9	-	x	x	x	-	x	x	-	x
Blue Rock	10	13	--	-	x	x	x	-	x	-	-	x
	392	323	209									

\* Program development during 1965-69.

x Facilities provided free.



GRAZING STATISTICS

Total Number of Cattle Grazed under Permit

Forest	Yearlings		Mature & Bulls		Totals	
	1968	1969	1968	1969	1968	1969
Crowsnest	7,729	7,728	6,586	7,079	14,315	14,807
Bow River	2,579	2,475	6,981	6,615	9,560	9,090
Clearwater-Rocky	282	197	791	919	1,073	1,116
	<u>10,590</u>	<u>10,400</u>	<u>14,358</u>	<u>14,613</u>	<u>24,948</u>	<u>25,013</u>

Total Number of Sheep Grazed under Permit

Forest	<u>1967</u>	<u>1968</u>	<u>1969</u>
Crowsnest	--	956	922
Bow River	--	--	--
Clearwater-Rocky	--	--	--
	<u>--</u>	<u>956</u>	<u>922</u>

Total Number of Horses Grazed under Permit

Forest	<u>1968</u>	<u>1969</u>
Crowsnest	--	--
Bow River	285	286
Clearwater-Rocky	144	142
	<u>429</u>	<u>428</u>

Number of Grazing Permits Issued

Forest	<u>1968</u>	<u>1969</u>
Crowsnest	179 cattle 1 sheep	174 cattle 1 sheep
Bow River	87 cattle 4 horses	82 cattle 4 horses
Clearwater-Rocky	14 cattle 10 horses	13 cattle 7 horses
	<u>295</u>	<u>281</u>

Continued



GRAZING STATISTICS

Actual Use in A.U.Ms.

Forest	1968	1969
Crowsnest	45,313	45,611
Bow River	34,660	33,898
Clearwater-Rocky	5,896	5,957
	<u>85,869</u>	<u>85,466</u>

Revenue from Grazing Permits

Forest	1968	1969
Crowsnest	\$41,275.73	\$42,744.60
Bow River	29,957.00	29,526.20
Clearwater-Rocky	3,839.85	3,798.42
	<u>\$75,072.58</u>	<u>\$76,069.22</u>

Summary

	<u>1968</u>	<u>1969</u>
Revenue	\$75,072.58	\$76,096.22
No. of Livestock	25,377	26,264
No. of Allotments	96	95
No. of Permits	295	281
Average No. Permits/ Allotment	3.1	2.9
Average No. Livestock/ Allotment	264	276
Average No. Livestock/ Permit	86	93

Continued



GRAZING STATISTICS

Summary (Continued)

<u>Forest</u>	<u>1968</u>	<u>1969</u>
Average Amount Revenue/ Allotment	782.01	801.91
Average Amount Revenue/ Permit	254.48	270.80
<u>Livestock Losses</u>	<u>Numbers Lost</u>	
	<u>1968</u>	<u>1969</u>
<u>Causes</u>		
Poisonous Plants	29	41
Predators	4	3
Lightning	2	6
Hunters	2	13
Automobiles	1	7
Drowning	-	2
Natural or Unknown	60	113
Theft, Unaccounted, Missing	1	29
	<u>99</u>	<u>214</u>
	<u>==</u>	<u>==</u>

Grazing by Forests

	Crowsnest		Bow River		Clearwater		Total	
	1968	1969	1968	1969	1968	1969	1968	1969
Cattle	14,315	14,807	9,560	9,090	1,073	1,116	24,948	25,013
Sheep	956	922	--	--	--	--	956	922
Horses	--	--	285	286	144	142	429	428
Totals	15,271	15,729	9,845	9,376	1,217	1,258	26,333	26,363

Actual Use

in A.U.M.\*45,313 45,611 34,660 33,898 5,896 5,957 85,869 85,466

No. Permits 180 175 91 86 24 20 295 281

Allotments 49 49 34 34 13 12 96 95

Revenue \$41,275 \$42,745 \$29,957 \$29,526 \$3,840 \$3,798 \$75,073 \$76,069

Note: \*A.U.M. = Animal Unit Month = the amount of forage required for one animal unit for one month.



FOREST PRODUCTION

(Statistics on timber licenses, timber permits and  
production of lumber and related products in the  
Conservation Area)

Number of Timber Quota Certificates offered for sale	-
Quota Volume offered	-
Number of Timber Licenses offered for sale	-
Number of Timber Licenses granted to Quota Holders	10
Volume of Timber granted - Coniferous	12,337,392 cu. ft.
Salvage Licenses granted	-
Special Permits issued	9
Volume of Timber Permitted	296,505 cu. ft.
Miscellaneous Timber Permits issued	204
Number of Active Timber Licenses	72
<u>Production of lumber and related products:</u>	
Lumber	47,521,029 FBM
Plywood Logs, Coniferous	970,922 FBM
Railway Ties	313 pieces
Round Timber	287,696 cu. ft.
Lath	1,168,900 pieces
Slabs and Fuelwood	42 cords
Christmas Trees	4,399
Trees for transplanting	3,709



# GOVERNMENT OF THE PROVINCE OF ALBERTA

OFFICE OF THE PROVINCIAL AUDITOR

APPENDIX "D"

1969-70 Annual Report  
Eastern Rockies Forest  
Conservation Board

EDMONTON,

June 10, 1970

Eastern Rockies Forest Conservation  
Board  
CALGARY 2, Alberta

I have examined the Balance Sheet of the Eastern Rockies Forest Conservation Board as at March 31, 1970, and the Statements of Maintenance Expenditure and Government of Canada and Government of the Province of Alberta Equity for the year then ended. My examination included a general review of the accounting procedures and such tests of accounting records and other supporting evidence as I considered necessary in the circumstances.

In my opinion these financial statements present fairly the financial position of the Board as at March 31, 1970, and its maintenance expenditure for the year then ended, in accordance with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

C. X. *R. M. F. A.*  
Provincial Auditor.



Statement A

EASTERN ROCKIES FOREST CONSERVATION BOARD

BALANCE SHEET \*

AS AT MARCH 31, 1970

ASSETS

Men's Compensation Board deposit	ψ	5,258.65
of loose tools and equipment transferred		
to the Province of Alberta as at April 1, 1959		173,496.38
all improvements and works		5,716,315.20
		ψ 5,895,370.23

LIABILITIES

Government of Canada and Government of the		
Province of Alberta equity, Statement C		ψ 5,895,370.23
		=====

This is the Balance Sheet referred to in my report  
of June 10, 1970, addressed to the Eastern Rockies  
Forest Conservation Board.

*C. X. Duncanson* F. C. A.  
Provincial Auditor.

es 1 and 2

Accompanying notes are a part  
of these financial statements.



Statement B

EASTERN ROCKIES FOREST CONSERVATION BOARD

STATEMENT OF MAINTENANCE EXPENDITURE \*

FOR THE YEAR ENDED MARCH 31, 1970

aintenance expenses:

Salaries	\$619,707.03
Wages	122,397.19
Equipment and motor vehicle expense	117,790.41
Rentals	49,423.37
Maintenance, material and operation expense	25,336.35
Heat, light and power	15,452.45
Administration and general expense	7,716.26
Travelling	5,093.21
Freight, express and cartage	1,503.75
Honorarium	1,000.00
Telephone and telegraph	538.37
Postage	412.97
Pensions	219.38
Advertising	29.34
	<hr/>
Automobiles, trucks and mobile equipment	\$ 966,620.38
Furnishings, equipment and tools	54,962.78
	<hr/>
	\$1,022,175.56
provided by:	
Appropriations 1815, 1819 and 1821	\$1,022,175.56
	<hr/>

\* Note 3



Statement C

EASTERN ROCKIES FOREST CONSERVATION BOARD

STATEMENT OF GOVERNMENT OF CANADA AND GOVERNMENT  
OF THE PROVINCE OF ALBERTA EQUITY

FOR THE YEAR ENDED MARCH 31, 1970

Balance as at April 1, 1969	\$ 5,895,265.11
Add:	
Workmen's Compensation Board deposit interest	258.65
	\$ 5,895,523.76
Deduct:	
Workmen's Compensation Board interest remitted	153.53
Government of Canada and Government of the Province of Alberta equity as at March 31, 1970	\$ 5,895,370.23



EASTERN ROCKIES FOREST CONSERVATION BOARD

NOTES TO THE FINANCIAL STATEMENTS

MARCH 31, 1970

Note 1 Total capital expenditures from inception to March 31, 1955, amounting to \$6,278,906.10 were made from funds provided by the Government of Canada (as authorized under Section 8(a) of the Memorandum of Agreement) for the location and construction of forest improvements, the making of a forest inventory, reforestation, and such other works and services as the Board considered necessary in that area of the East Slope of the Rocky Mountains forming part of the watershed of the Saskatchewan River, as more definitely described in the Appendix to the Act. The total expenditure was not to exceed \$6,300,000.00 during the seven years ended March 31, 1955.

Note 2 Section 20 of the Memorandum of Agreement set forth in the Schedules to Chapter 59, Statutes of Canada, 1947, and Chapter 20, Statutes of Alberta, 1948, and Amendment Acts, 1957, provides that upon termination of the Agreement:

- (a) All improvements or works resulting from the carrying out of the programs of the Board shall belong to the Province.
- (b) All other property acquired by the Board shall belong to the Province.

Note 3 The total amount expended by the Board was provided by the Government of the Province of Alberta in accordance with Section 2(a)(ii) of the Memorandum of Agreement, dated June 17, 1953, between the Government of Canada and the Government of the Province of Alberta as set forth in the Schedules to Chapter 41, Statutes of Canada, 1952, and Chapter 36, Statutes of Alberta, 1953.

The remuneration and expenses of members of the Board were paid by the Governments of Canada and the Province of Alberta in accordance with Section 2(b)(iii) of the Memorandum of Agreement. The amounts paid by the Province of Alberta, including the honorarium of \$1,000.00 to A. T. Baker, have been incorporated into the Statement of Maintenance Expenditure.

**DATE DUE SLIP**

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EASTERN ROCKIES FOREST  
CONSERVATION BOARD

ANNUAL REPORT OF THE EASTERN  
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